Inland Navigation Planning

Researching Congestion

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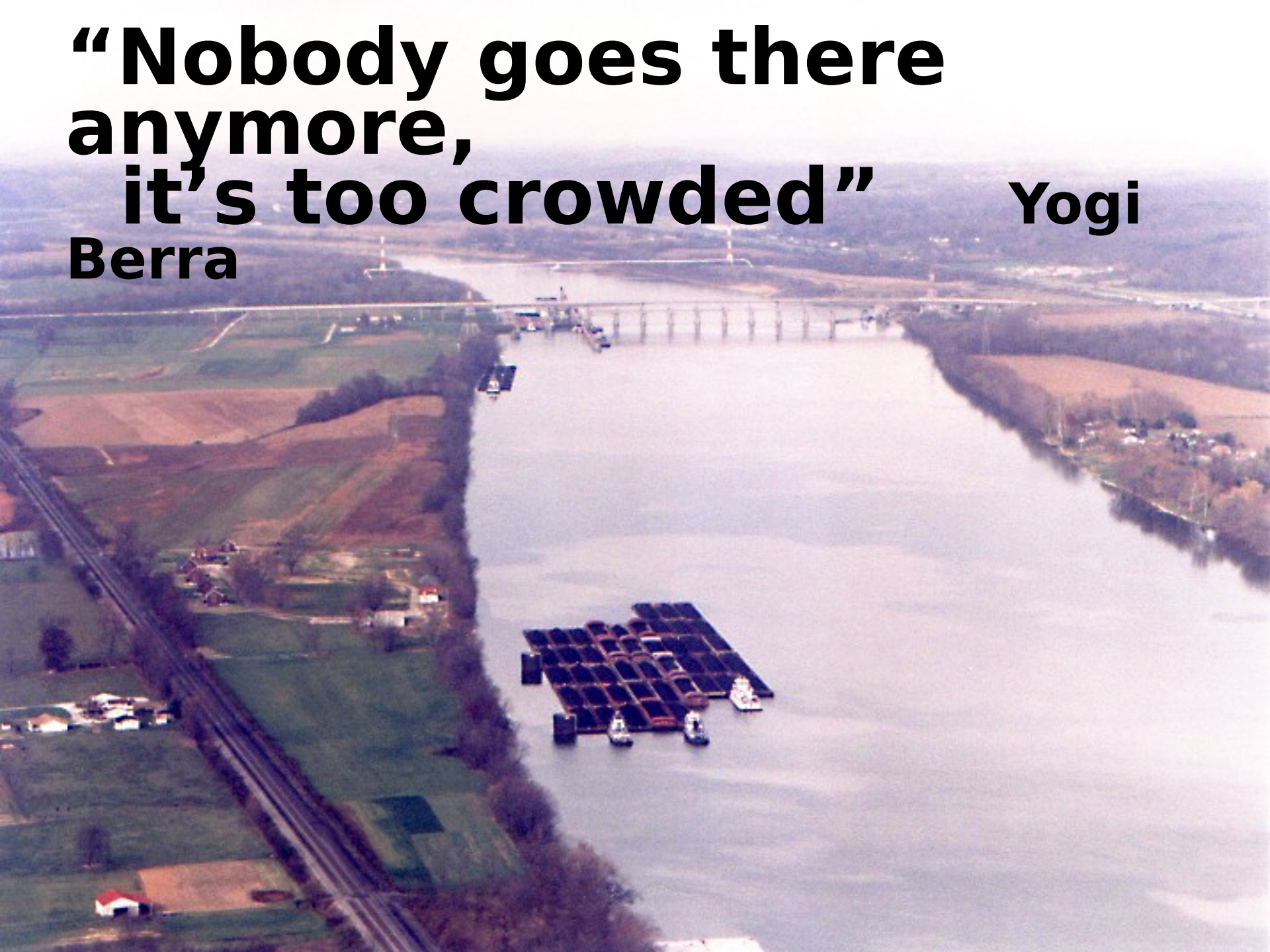
“ …. The base economic benefit of a navigation project is the reduction in the value of resources required to transport commodities.”

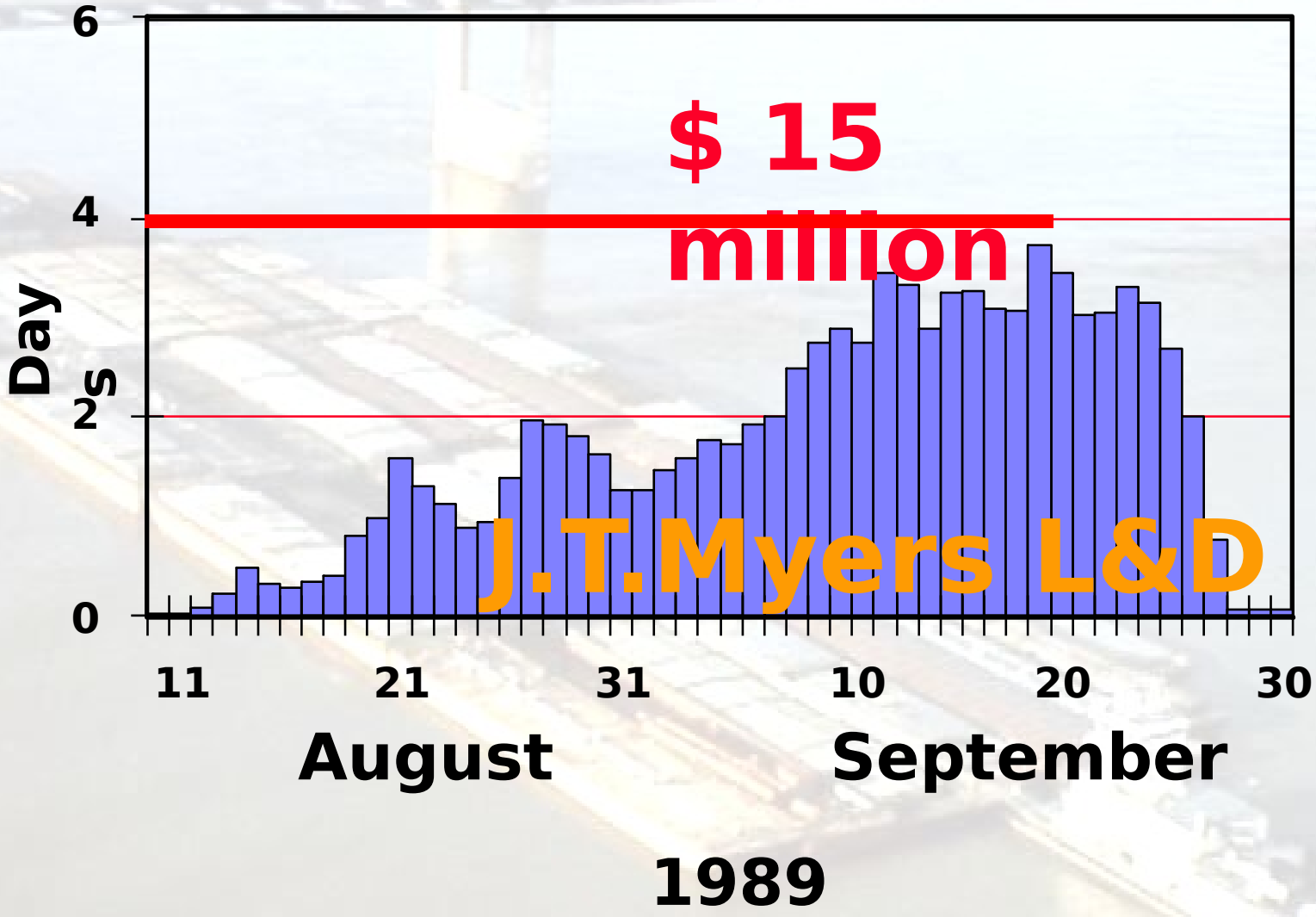
Ref. ER 1105-2-100, 22 April 2000

http://www.usace.army.mil/inet/functions/cw/cecwp/General_guidance/guidance.htm

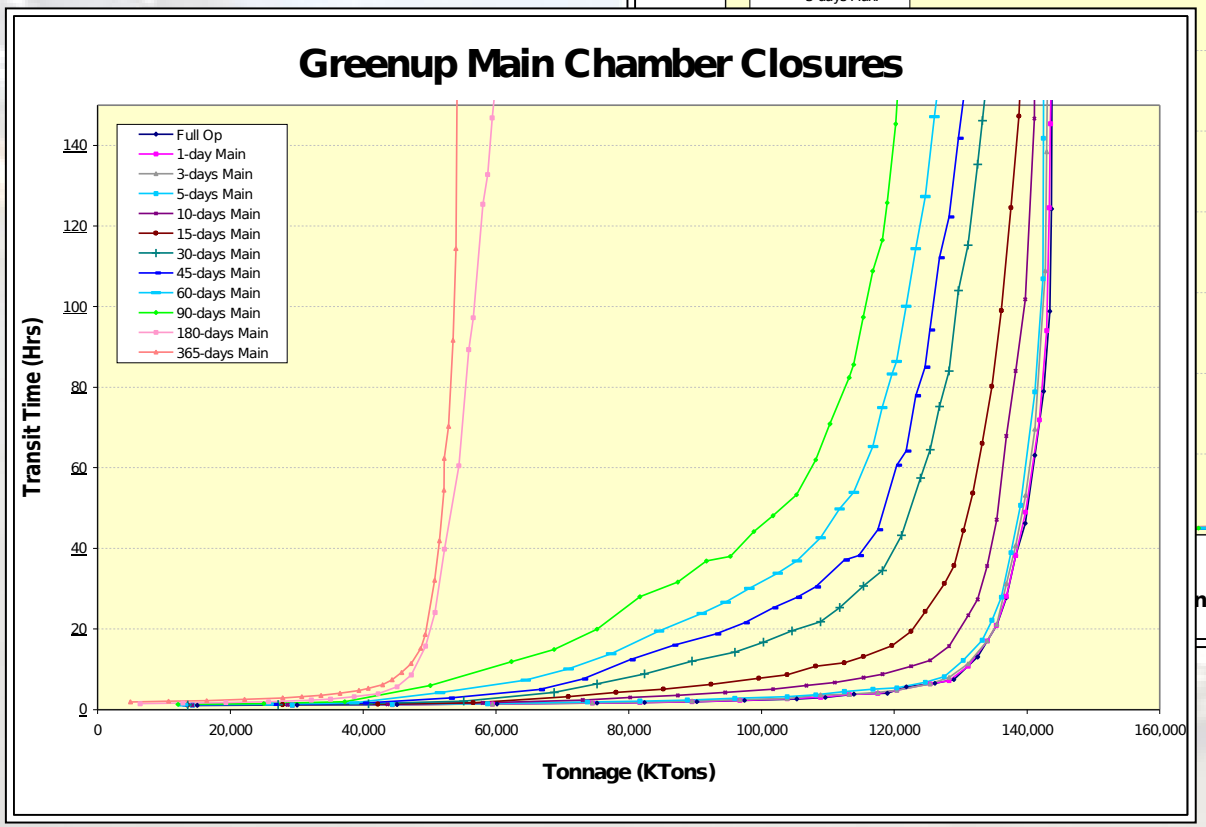


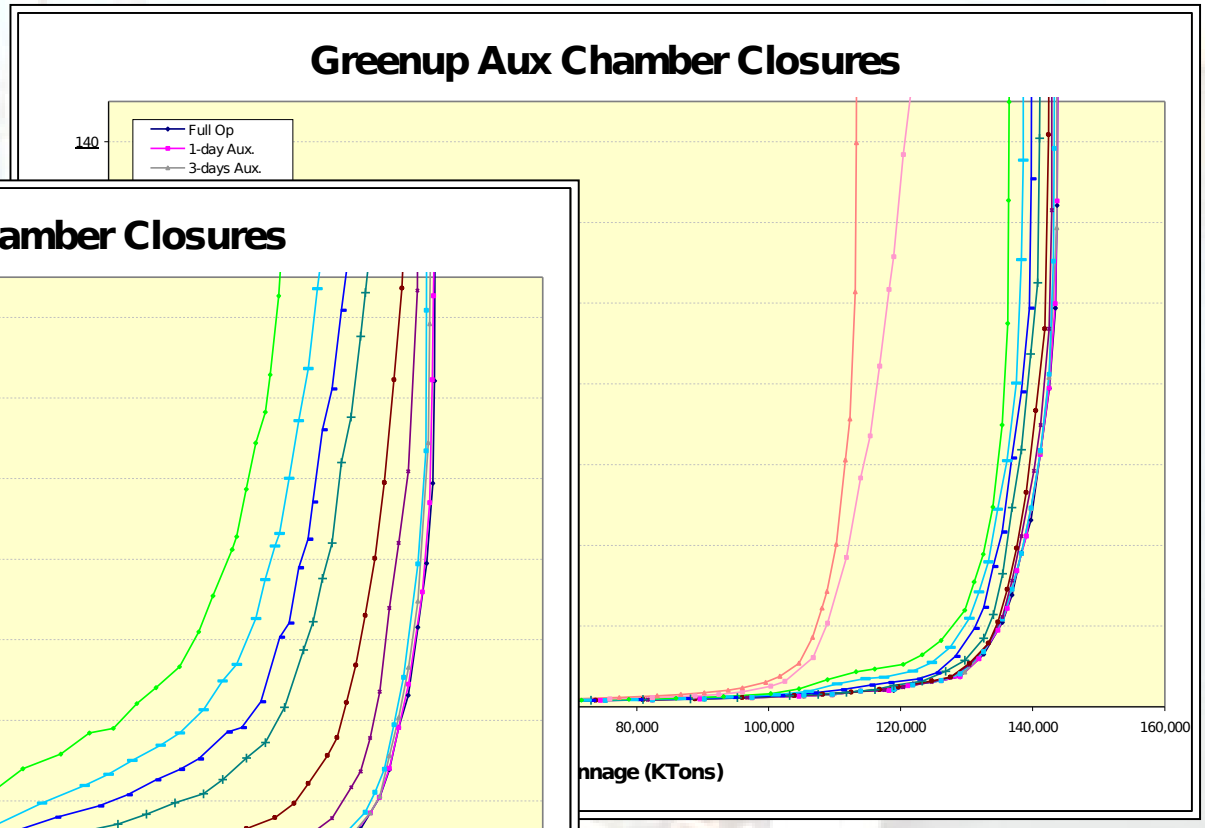
**“Nobody goes there anymore,
it’s too crowded” Yogi Berra**

Average Daily Delay Per To

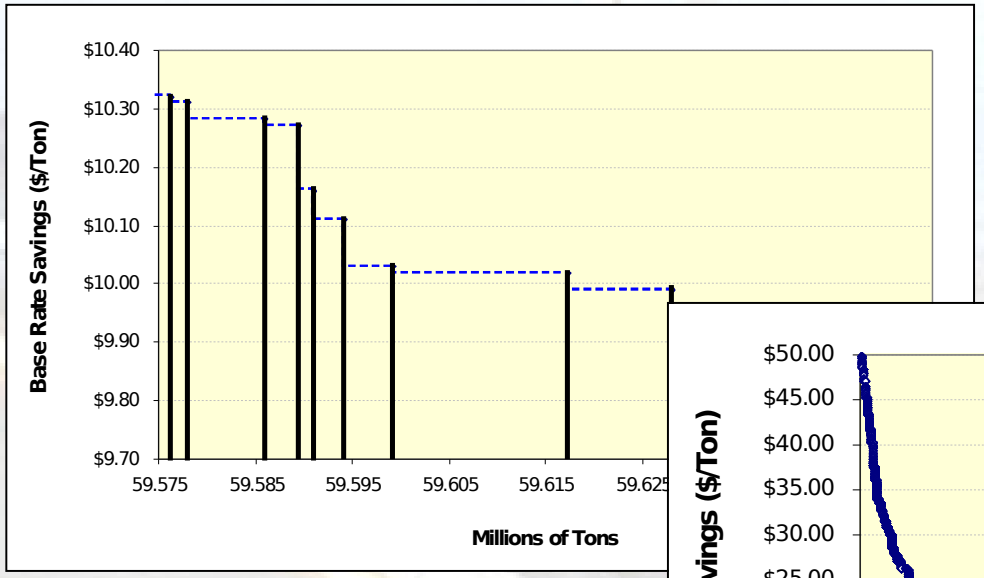


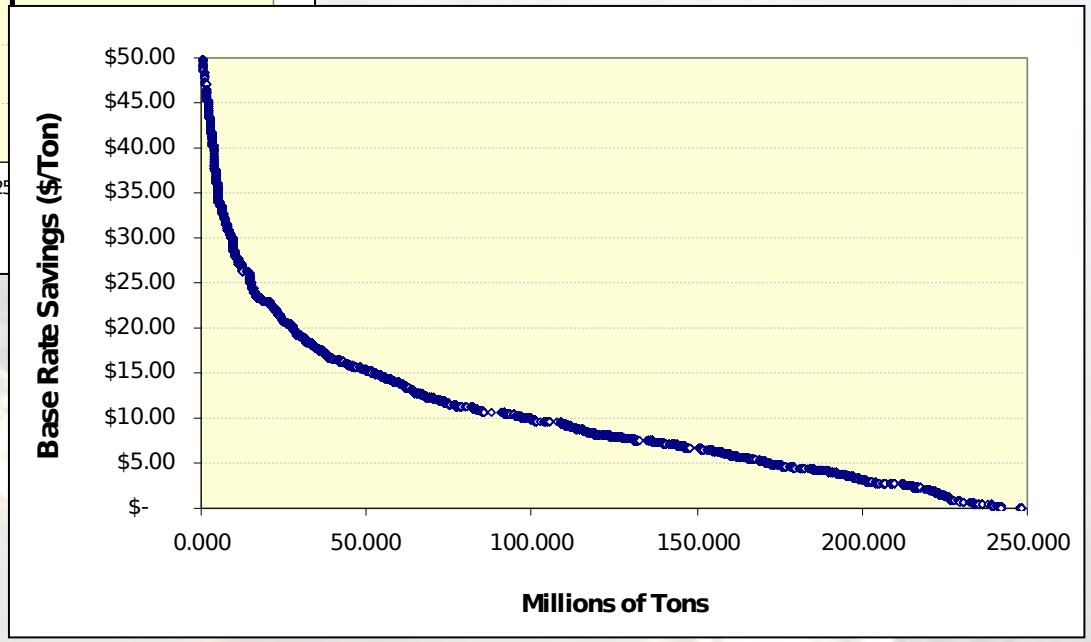
Tonnage-Transit Relationships



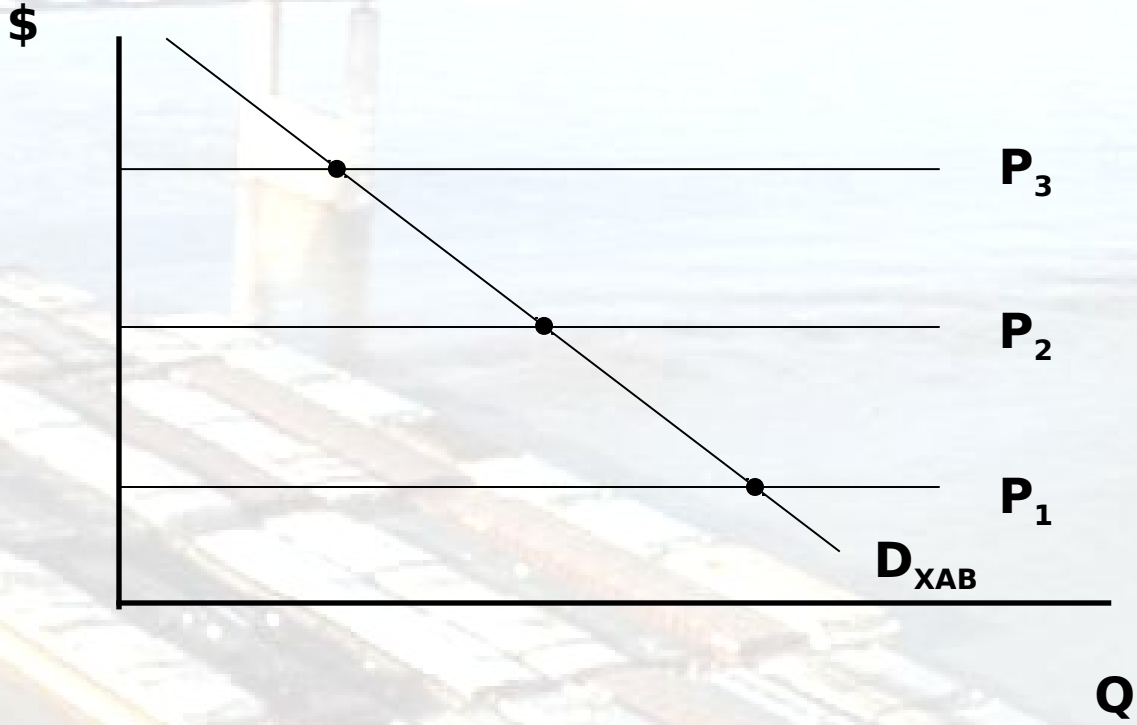


Ranked Movements



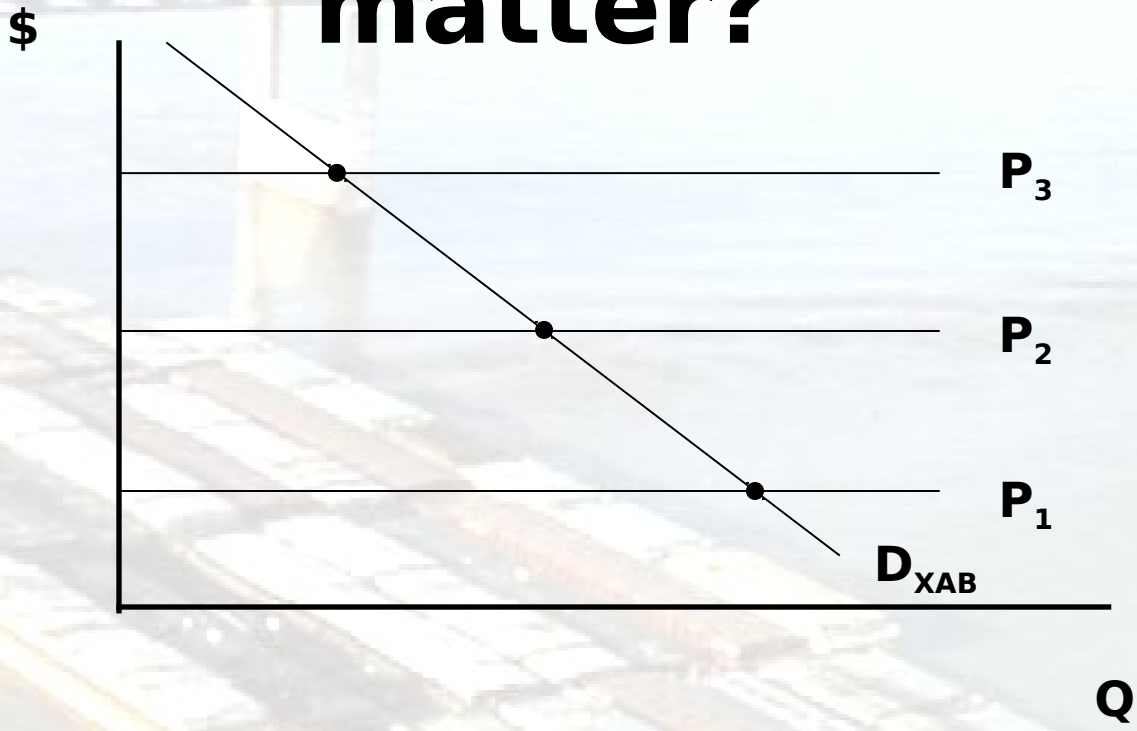


P_n = Expected Waterway Price



D_{XAB} = Demand for Waterway Movement

Does the shape of D_{XAB} really matter?



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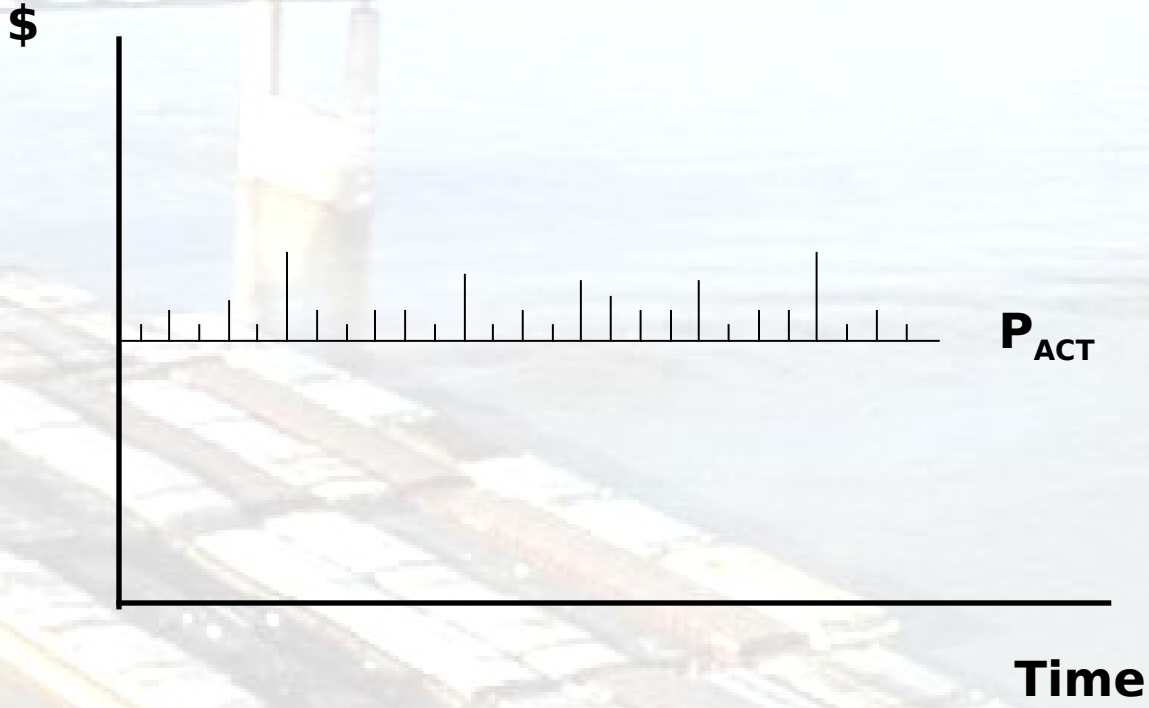

P_{ACT} = Actual Water Movement Cost
(reliability problems result in cost spikes)

Options for coping with lock closures

- Get in line
- Reschedule (water)
- Shift mode
- Change markets

Lock closures and behavior modifications, shippers may:

- Continue in XAB market
- Reduce participation
- Leave the market entirely

P_n = Expected Waterway Price

D_{XAB} = Demand for Waterway Movement

Shippers:

- **Forecast Waterway Costs**
- **Incorporate Reliability problems into Forecasts**
- **React Rationally to Closure Events**

Predicting congestion is crucial to estimating waterway improvement